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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/568,429	02/14/2006	Makoto Tsuji	125559	9738

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OLIFF & BERRIDGE, PLC  
P.O. BOX 320850  
ALEXANDRIA, VA 22320-4850

EXAMINER
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DUONG, THANH P

ART UNIT	PAPER NUMBER
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1774

NOTIFICATION DATE	DELIVERY MODE
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07/05/2011

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

OfficeAction25944@oliff.com  
jarmstrong@oliff.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/568,429	<b>Applicant(s)</b> TSUJI ET AL.	
	<b>Examiner</b> TOM DUONG	<b>Art Unit</b> 1774	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 14 April 2011.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) 3,4 and 6 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,5 and 7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                    | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

Applicant's remarks and amendments filed on April 14, 2011 have been carefully considered. New claim 7 has been added. Claims 1-7 are pending in this application.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-2 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Publication Number 09-276708 (hereinafter JPN '708) in view of Hoyer (3,959,520).

Regarding claims 1-2 and 7, JPN '708 discloses a catalyst-support substrate (Figs. 1a, 1b) composed of a heat resistant porous structure (section 0007) having chained pores (section 0012); and a catalytic layer for burning particulates (sections 0012-0014), the catalytic layer formed on a surface of the catalyst-support substrate (section 0018).

JPN '708 does not expressly disclose "the filter catalyst being characterized in that an SEM photograph on a cross section of the filter catalyst is turned into electronic data so that, in an image being turned into electronic data, a ratio of a number of pixels forming an outer periphery of the catalytic layer to a number of pixels forming the catalytic layer is 0.5 or more and an image of 1 to 3  $\mu\text{m}$ /pixel magnification".

However, JPN '708 further discloses that it is desirable to provide a homogeneous catalytic coating on the cell wall and on the interior of the pore in the cross section of the catalyst filter with optimum catalytic layer thickness to avoid blockage or minimize pressure loss. JPN '708 further discloses that the catalyst particle sizes and the average pore size are predetermined parameters that can be controlled to provide a filter with a high specific surface area and minimum pressure loss (sections 0015-0018 and Figs. 1a and 1c). Therefore, controlling the amount of catalyst coated on the cell walls and on the interior pores of the cell walls will produce the desirable number of pixels forming on the outer periphery of the catalytic layer to the number of pixels forming the catalytic layer at most thru routine optimization. Thus, it would have been obvious to one having ordinary skill in the art that the device of JPN '708 exhibits the ratio of a number of pixels of the instant claim since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art (*In re Boesch*, 617 F.2d. 272, 205 USPQ 215 (CCPA 1980) and (*In re Allen* 105 USPQ 233). JPN '708 discloses the device of the claimed invention and it would have been a *prima facie* obviousness that device of JPN '708 has the image with ratio of pixels of the claimed invention since the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a *prima facie* case of either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). "When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not." *In re Spada*, 911 F.2d 705, 709,

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15 USPQ2d 1655, 1658 (Fed. Cir. 1990). Therefore, the *prima facie* case can be rebutted by evidence showing that the prior art products do not necessarily possess the characteristics of the claimed product. *In re Best*, 562 F.2d at 1255, 195 USPQ at 433. Furthermore, the ratio of a number of pixels forming an outer periphery of the catalytic layer to a number of pixels forming the catalytic forming the catalytic layer is 0.5 or more is not considered to confer patentability to the claim. The precise ratio of a number of pixels would have been considered a result effective variable by one having ordinary skill in the art. As such, without more, the claimed ratio of a number of pixels cannot be considered be "critical". Accordingly, one having ordinary skill in the art would have routinely optimized the ratio of a number of pixels for the filter catalyst so as to optimize the pressure drop and catalytic activity in the filter catalyst. (*In re Boesch*, 617 F.2d. 272, 205 USPQ 215 (CCPA 1980)) and (*In re Aller*, 105 USPQ 233). Moreover, the recitation with respect to "an SEM photograph on a cross section of the filter catalyst is turned into electronic data so that, in an image being turned into electronic data, a ratio of a number of pixels forming an outer periphery of the catalytic layer to a number of pixels forming the catalytic layer is 0.5 or more" does not further limit structural features of the instant claim.

It appears that JPN '708 discloses the forming of the catalyst layer by removing excess slurry by repeating a pressure fluctuation at both ends of the catalyst-support substrate (sections 0012-0016 and 0024). JPN '708 discloses that it known in the art to obtain a homogeneous catalytic coating by performing a Ayr blow or suction (equivalent to pressure fluctuation) in order to remove excess catalyst inside of the pore to avoid blockage (section 0015). In addition, the recitation with respect to "removing excess

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slurry by repeating a pressure fluctuation at both ends of the catalyst-support substrate' is direct to a product-by-process limitation, and product-by-process claim is the same or obvious from a product of the prior art, the claim is unpatentable even through the prior product was made by a different process. *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

In any event, Hoyer et al. teaches that it is conventional to remove the excess catalyst slurry from the honeycomb surface by blowing pressurized air thru the surface (Col. 1, lines 15-29 and Col. 3, lines 1-30) in order to provide and control the proper amount of catalyst on the honeycomb surface (Col. 4, lines 9-36).

Thus, it would have been obvious in view of Hoyer et al. to one having ordinary skill in the art to modify the device of JPN '708 with the forming catalytic layer technique as taught by Hoyer et al. in order to provide and/or control the proper amount of the catalyst on the honeycomb surface.

Regarding claim 2, the recitation with respect to "image being turned into the electronic data is an image with 1 to 3  $\mu\text{m}/\text{pixel}$  magnification" does not further limit structural features of the instant claim.

Regarding claim 7, JPN '708 appears to show the ratio of an outer periphery length of the catalytic layer in the cross section of the filter catalyst to a cross-sectional area of the catalytic layer is 0.5 or more (Figs. 1b and 1c) in order to provide a high specific surface area. JPN '708 further shows that the length of the homogeneous catalytic coating on the cell wall and on the interior of the pore in the cross section of the catalyst filter is greater than the optimum thickness of the catalytic layer or cross-sectional area of the catalytic area in order to provide a catalyst coating with high

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specific surface area and low pressure drop (Figs. 1b and 1C and sections 0015-0018). JPN '708 further discloses that the catalyst particle sizes and the average pore size are predetermined parameters that can be controlled to provide a filter with a high specific surface area and minimum pressure loss (sections 0015-0018 and Figs. 1a and 1c). Therefore, controlling the amount of catalyst coated on the cell walls and on the interior pores of the cell walls will produce the desirable outer periphery length of the catalytic layer in the cross section of the filter catalyst to a cross-sectional area of the catalytic layer at most thru routine optimization. Thus, it would have been obvious to one having ordinary skill in the art that the device of JPN '708 exhibits the ratio of an outer periphery length of the catalytic layer in the cross section of the filter catalyst to a cross-sectional area of the catalytic layer of 0.5 or more since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art (*In re Boesch*, 617 F.2d. 272, 205 USPQ 215 (CCPA 1980) and (*In re Allen* 105 USPQ 233).

2. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over the applied references [Japanese Publication Number 09-276708 (hereinafter JPN '708) in view of Hoyer (3,959,520)] as applied to claim 1 above, and further in view of Abe et al. (5,459,119).

Regarding claim 5, the applied references essentially disclose the features of the claimed invention except a catalyst layer with loading amount of 150 – 200 g/L apparent volume of the catalyst-support substrate.

Abe et al. teaches that it is conventional to provide the catalyst loading amount of the claimed invention in order to provide a catalyst purification device with excellent purification ability and durability (Col. 2, lines 27-55 and Tables I and II).

Thus, it would have been obvious in view of Abe et al. to one having ordinary skill in the art to modify the device of the applied references with the catalyst loading amount as taught by Abe et al. in order to provide a catalytic filter with excellent purification ability.

### ***Response to Arguments***

Applicant's arguments filed April 14, 2011 have been fully considered but they are not persuasive.

Applicant urged that "the recited ratio of the number of pixels is critical for the catalytic layer to be formed uniformly on the surface of the catalyst-support substrate. See specification at paragraph [0039]. The catalytic layer formed uniformly on the surface of the catalyst-support substrate results in a filter catalyst having ventilation holes with sufficient opening amounts. Id. Additionally, the recited ratio of the number of pixels could not have been a result effective variable because the applied references do not disclose analyzing pixels of an SEM photograph of a filter catalyst, much less the relationship between a ratio of the number of pixels and uniformity of a catalytic layer formed on a catalyst-support substrate. Thus, the applied references do not disclose that the ratio of the number of pixels is a result-effective variable and the recited ratio could not have been obtained by routine experimentation. See MPEP §2144.05(II)(B) (stating that a "particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of



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the optimum or workable ranges of said variable might be characterized as routine experimentation")."

Examiner respectfully disagrees. JPN '708 further discloses that the catalyst particle sizes and the average pore size are predetermined parameters that can be controlled to provide a filter with a high specific surface area and minimum pressure loss (sections 0015-0018 and Figs. 1a and 1c). Therefore, controlling the amount of catalyst coated on the cell walls and on the interior pores of the cell walls will produce the desirable number of pixels forming on the outer periphery of the catalytic layer to the number of pixels forming the catalytic layer at most thru routine optimization. Thus, it would have been obvious to one having ordinary skill in the art that the device of JPN '708 exhibits the ratio of a number of pixels of the instant claim since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art (*In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) and (*In re Allen* 105 USPQ 233). JPN '708 discloses the device of the claimed invention and it would have been a *prima facie* obviousness that device of JPN '708 has the image with ratio of pixels of the claimed invention since the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a *prima facie* case of either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). "When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not." *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). Therefore, the

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*prima facie* case can be rebutted by evidence showing that the prior art products do not necessarily possess the characteristics of the claimed product. *In re Best*, 562 F.2d at 1255, 195 USPQ at 433. Furthermore, the ratio of a number of pixels forming an outer periphery of the catalytic layer to a number of pixels forming the catalytic forming the catalytic layer is 0.5 or more is not considered to confer patentability to the claim. The precise ratio of a number of pixels would have been considered a result effective variable by one having ordinary skill in the art. As such, without more, the claimed ratio of a number of pixels cannot be considered be "critical". Accordingly, one having ordinary skill in the art would have routinely optimized the ratio of a number of pixels for the filter catalyst so as to optimize the pressure drop and catalytic activity in the filter catalyst. (*In re Boesch*, 617 F.2d. 272, 205 USPQ 215 (CCPA 1980)) and (*In re Aller*, 105 USPQ 233).

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to TOM DUONG whose telephone number is (571)272-2794. The examiner can normally be reached on 8:00AM - 4:30PM (IFP).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Walter Griffin can be reached on (571) 272-1447. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Tom P. Duong/  
Primary Examiner, Art Unit 1774